Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** mf **Date:** 10-8-13 **Tooling:** **Date:** **Run Start**

QC: **Date:** **SPC (Y/N):** **Date:** **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D206-667-143	Rev C

100 — 0.00

DC

Document Control

DOCUMENT CONTROL

Memo 0.00

Photocopy bluefile and create labels as per PPP D206-667-103 CHG004

for BG 10-9-13

δ 10/08/13

110 — Pick Kit — 0.00

Packaging

Packaging

Packaging

Memo 0.00

(1X) MB 10-08-31

120 — 0.00

CNC Bend 2

CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES

Memo 0.00

Bend tube as per Dwg D206-667-143 using CNC bender program

(1X) MB 10-08-31

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC15- Crosstube Dimensional Check	0.00				40			
QC		0.00							
Quality Control	**Memo**								

8/10/08/31

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140		0.00							
Crosstubes	Crosstubes								
Crosstubes	**Memo**	0.00							

1-Drill holes & ream using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill all (3) top holes.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg D206-667-143. Drill only the top (2) holes.

5-Drill pilot holes as per Dwg D206-667-143.Drill only the top (2) holes.

6-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D206-667-141.

8-C'sink holes as per Dwg D206-667-143. Allow rivet to sit below surface to compensate for paint.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-143 Inside of Cuff(Donot engrave on outside of tube)

10-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-143

MB 10-08-31

SAD 10-09-01

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150	Crosstubes Chemical Conversion	0.00				1			
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes									
160	QC3- Inspect Part Finish	0.00				1			10-05-01
QC	Memo	0.00							
Quality Control									
170	QC5- Inspect part completeness to step on W/O	0.00				1			10-05-01
QC	Memo	0.00							
Quality Control									

SAD 10-09-01

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID:

Item Name: Crosstube Fwd **Stop**

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	Outsource process - NDT per QSI038 4.1	0.00 P/O: 12506							
Outsource2	**Memo**	0.00				CL	10/9/03		ⓒ
Outsource process - NDT	CROSSTUBES								
190		0.00							
Packaging	Packaging								
Packaging	**Memo**	0.00				CL	10/9/3	ⓘ	
Packaging	Ensure copy of NDT results attached to work order.								
200	QC5- Inspect part completeness to step on W/O	0.00							
QC	**Memo**	0.00				MM	10	09	08 Ⓘ
Quality Control									

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210		0.00							
SprayPaint	SprayPaint					m/l	10	09	08 (J)
SprayPaint	**Memo**	0.00							
Spray Painting	1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2 PRIME: Start Time: 8:30 Fininsh Time: 9:30 PAINT: Start Time: 2:30 Finish Time: 3:30								
220	QC14- Inspect Spray Paint	0.00							
QC						(XO)			
Quality Control	**Memo**	0.00							
	Wrap in plastic bag to protect from scratches								

8 10/09/09

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start** **Stop**

Revision ID:

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start** **Stop**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230		0.00							
Crosstubes	Crosstubes					ML	10	09	09 (1)
Crosstubes	**Memo**	0.00							
Crosstubes	(ASSEMBLE AS PER DWG D206-667-143) 1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (2) Aft holes should be facing up. A/R Magnobond 6398 : 114158 exp: 01/2011 2-Install supports and clamps as per Dwg D206-667-143. Torque clamps to 80-100 in lb 3-Install nut plates as per Dwg D206-667-143. Touch-up rivet heads with Imron paint.					ET 10-09-10			
240	QC5- Inspect part completeness to step on W/O	0.00				S 10/02/13			
QC	**Memo**	0.00				QC			
Quality Control									

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID: **Stop**

Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____ **Run Start**

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250	Pick Kit	0.00				10/3/13			
Packaging	**Memo**	0.00							
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
QC	**Memo**	0.00 8/10/13							
Quality Control									
270	Packaging	0.00				10/4/13			
Packaging	**Memo**	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-103 Location: _____ PPP Rev: D								

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 61295

Friday, August 13, 2010 12:52:01 PM

Item ID: D206-667-103 **Accept** **Setup Start**

Revision ID:

Item Name: Crosstube Fwd **Stop**

Start Date: 8/16/2010 **Start Qty:** 1.00 **Cust Item ID:**

Required Date: 8/30/2010 **Req'd Qty:** 1.00 **Customer:**

Reference:

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____ **Run Start**

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280	QC21- Final Inspection - Work Order Release	0.00							
QC	**Memo**	0.00							
Quality Control									

10/09/15 MF

MF 10-9-15

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Required Date:** 8/30/2010

Start Qty: 1.00 **Required Qty:** 1.00

Comments:
IPP Rev:F□05.09.01□Add holes for compatibility with Bell Skidtubes□KJ/JLM
IPP Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD verified by:
IPP Rev: H 08.11.17 QC5 was QC6 at step 12 KJ verified by: EC
IPP Rev:I 08-12-15 add magnobond DD verified by:EC
IPP Rev J 09.01.06 ECN 08-562 EC verified by: DD
IPP Rev:K 09-01-19 as per DSI9439 DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN5-30A BOLT		Purchased	No			250	Each	110.0000	4	4			

Location	Loc Qty	Loc Code
ST339	110	
102473	4	
105144	10	
112933	21	
114437	25	
114941	50	

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN5-32A Bolt		Purchased	No			250	Each	232.0000	4	4			

Location	Loc Qty	Loc Code
ST340	232	
113121	4	
114056	74	
114405	50	
115016	50	
115108	50	
15072	4	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Required Date:** 8/30/2010

Start Qty: 1.00 **Required Qty:** 1.00

AN5-7A	Purchased	No		250	Each	200.0000	10	10
Bolt								

Location	Loc Qty	Loc Code
ST337	200	
100826	10	
109061	4	
113149	186	

M113149

~~AN960D516~~ NAS1149D0563J	Purchased	No		250	Each	34.0000	18	18
Washer								M114742

Location	Loc Qty	Loc Code
ST	34	
103694	18	
107534	12	
109287	4	

AN970-4	Purchased	No		250	Each	82.0000	12	12
Washer								10/3/13

Location	Loc Qty	Loc Code
ST349	82	
112991	32	
115266	50	

M115266

D206-667-103TRN	Manufactured	No		110	Each	2.0000	1	1
Crosstube Turning DetailL								SAD 10-08-30

Location	Loc Qty	Loc Code
FG	1	
60143	1	
60144	1	
LG	1	

B61432 → 1

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Required Date:** 8/30/2010

Start Qty: 1.00 **Required Qty:** 1.00

D2873-043	Manufactured	No		230	Each	32.0000	2	2

Nut Plate Assembly

RT 10-09-10

Location	Loc Qty	Loc Code	
LG	32		
53966	10		
56466	2		
57337	20		x2

D2873-045	Manufactured	No		230	Each	28.0000	2	2

Nut Plate Assembly

RT 10-09-10

Location	Loc Qty	Loc Code	
LG	28		
53968	9		
57336	19		x2

D2891-1	Manufactured	No		230	Each	69.0000	2	2

2.25 Support

MM 10.09.09

Location	Loc Qty	Loc Code	
LG	69		
46159	15		
50952	18		
53347	4		
53773	20		
55786	12		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Required Date:** 8/30/2010

Start Qty: 1.00 **Required Qty:** 1.00

D3595-063-395	Manufactured	No		230	Each	46.0000	4	4

RUBBER CUSHION

MM 10-08-09

Location	Loc Qty	Loc Code	
FP	10		
44667	10		
ST	36		
60585	36		

RUBBER CUSHION .63" x 3.95" (4)

MS20601-AD4W8	Purchased	No		230	Each	286.0000	14	14

RIVET

M113768 ×14 112203

BT 10-09-10

Location	Loc Qty	Loc Code	
ST322	286		
108521	98		
112203	188		

MS21042L5	Purchased	No		250	Each	734.0000	4	4 ✓

Nut

8/13/13 (1)

Location	Loc Qty	Loc Code	
ST139	234		
114813	234		M114813
ST300	500		
115156	500		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Picklist Print

Friday, August 13, 2010 12:52:00 PM

Work Order ID: 61295

Parent Item: D206-667-103

Parent Item Name: Crosstube Fwd

Start Date: 8/16/2010 **Required Date:** 8/30/2010

Start Qty: 1.00 **Required Qty:** 1.00

MS21920-20	Purchased	No		230	Each	103.0000	4	4

Clamp (per MIL-DTL-8783C)

10-09-09

Location	Loc Qty	Loc Code	
LG	103		
112624	18		
114687	35		
114779	24		
115057	26		

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____

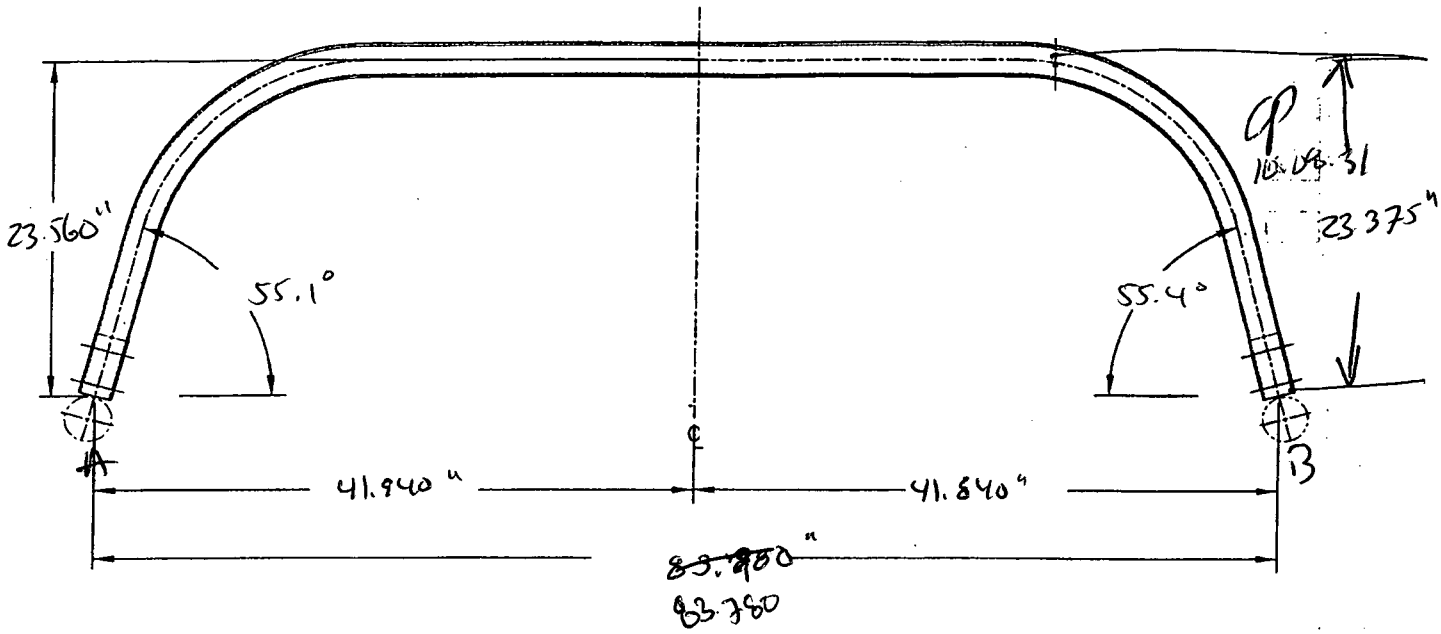
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	61295
Description: Crosstube High Fwd (206L)	Part Number:	D206-667-103
Inspection Dwg: D206-667-143 **Rev:** C		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.10



Comments
One side low. Acceptable CP 10.08.31

41.840
41.840
83.780

QC15 Inspection	S
Date	10/08/31

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.06.26	Dimensions updated per Dwg Rev C	KJ	
C	09.10.22	Minimum height dimension revised	KJ	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

#61295

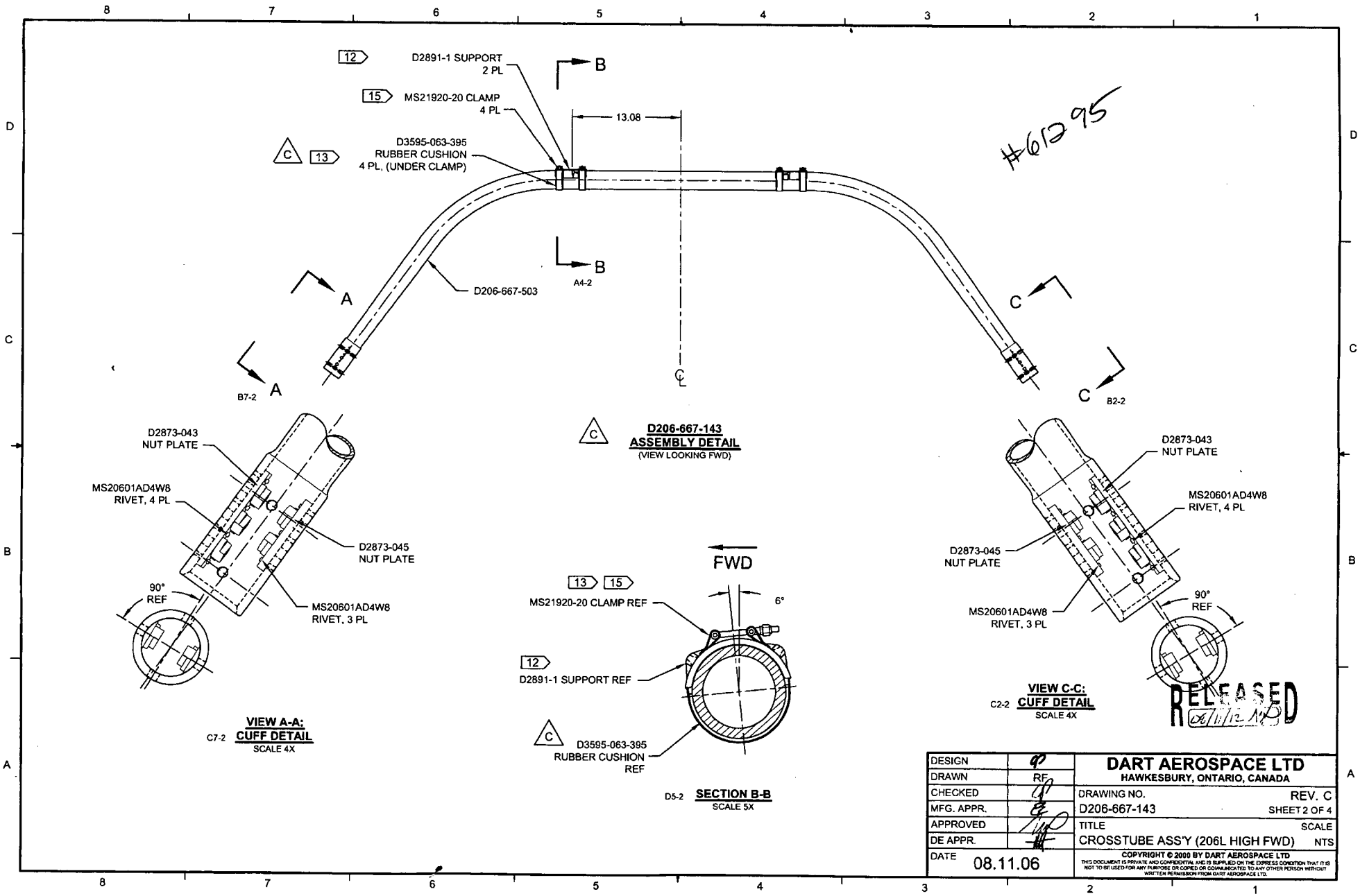
GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6002-115
   FINISHED LENGTH = 104.98±0.020
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: 15.5 lbs
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED

REV.	DESCRIPTION	BY	DATE
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17

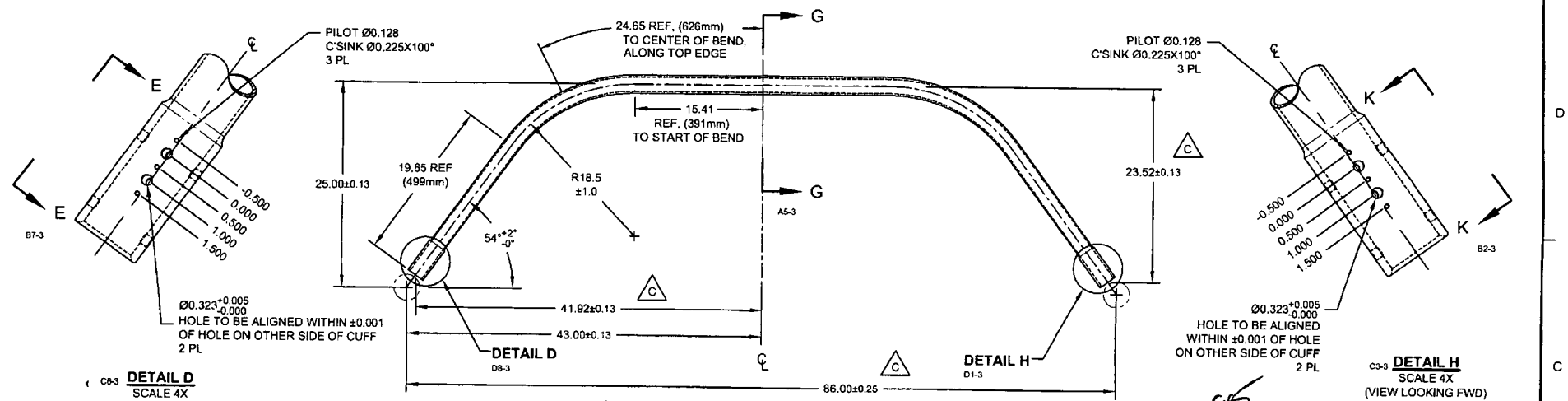
DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D206-667-143 REV. C SHEET 1 OF 4
MFG. APPR.		
APPROVED		TITLE CROSSTUBE ASS'Y (206L HIGH FWD) SCALE NTS
DE APPR.		
DATE	08.11.06	



#61295

RELEASED
06/11/12

DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D206-667-143 REV. C SHEET 2 OF 4
MFG. APPR.		
APPROVED		TITLE CROSSTUBE ASS'Y (206L HIGH FWD) SCALE NTS
DE APPR.		
DATE 08.11.06		

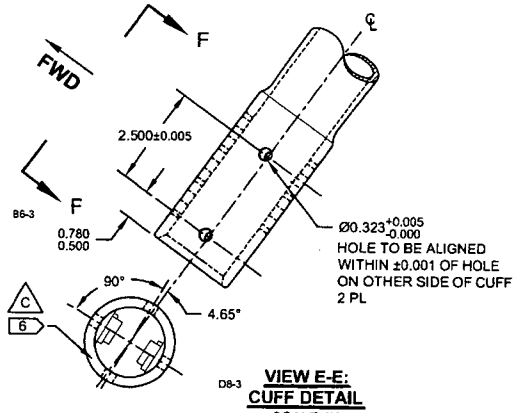


C8-3 **DETAIL D**
SCALE 4X
(VIEW LOOKING FWD)

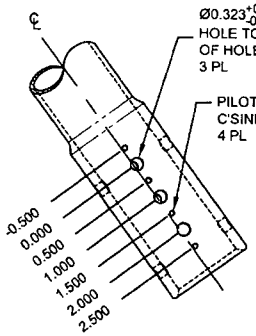
C3-3 **DETAIL H**
SCALE 4X
(VIEW LOOKING FWD)

C 10 **D206-667-503**
BENDING AND DRILLING DETAIL
(VIEW LOOKING FWD)

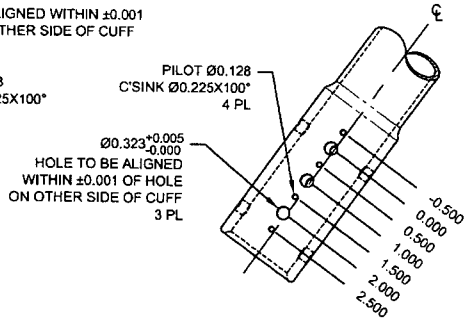
#61295



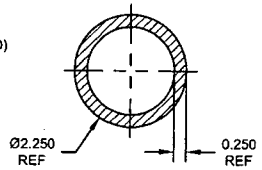
D8-3 **VIEW E-E:**
CUFF DETAIL
SCALE 4X



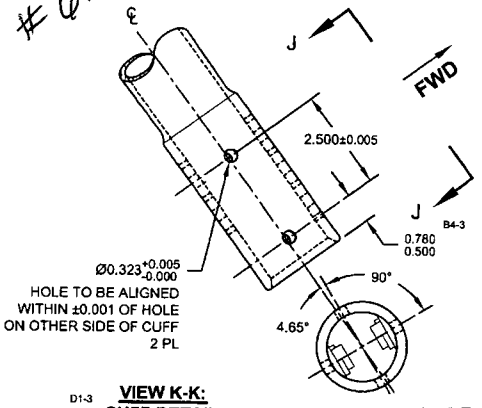
B7-3 **VIEW F-F**
(VIEW LOOKING AFT, ROTATED)



B2-3 **VIEW J-J**
(VIEW LOOKING AFT, ROTATED)



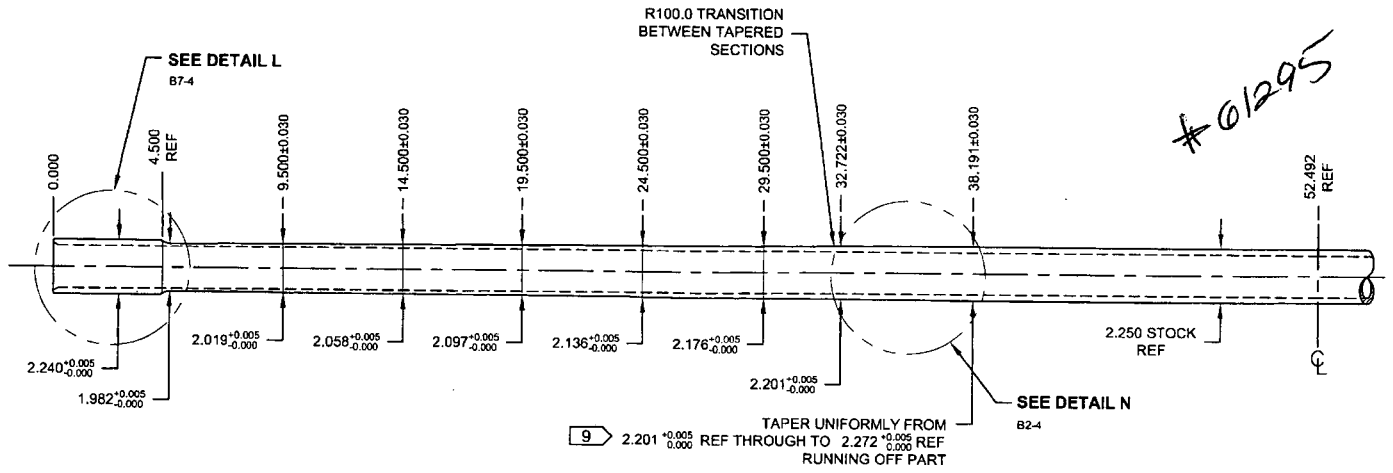
D4-3 **SECTION G-G**
SCALE 5X



D1-3 **VIEW K-K:**
CUFF DETAIL
SCALE 4X

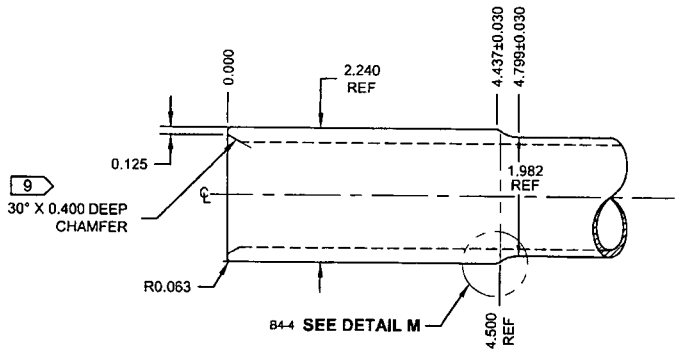
RELEASED
05/11/12 JD

DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D206-667-143 REV. C SHEET 3 OF 4
MFG. APPR.		
APPROVED		TITLE CROSSTUBE ASS'Y (206L HIGH FWD) SCALE NTS
DE APPR.		
DATE 08.11.06		

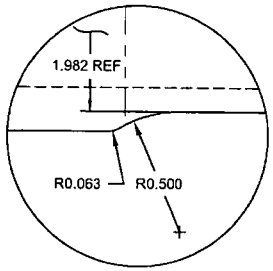


#01295

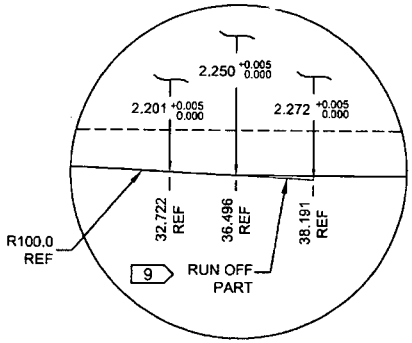
C TURNING DETAIL



D7-4 **DETAIL L: CROSSTUBE CUFF**
NOT TO SCALE



A6-4 **DETAIL M: CUFF TRANSITION**
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**
NOT TO SCALE

RELEASED

DESIGN		**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D206-667-143 REV. C SHEET 4 OF 4
MFG. APPR.		
APPROVED		TITLE CROSSTUBE ASS'Y (206L HIGH FWD) SCALE NTS
DE APPR.		
DATE 08.11.06		

8

5.0 PARTS LIST

REFERENCE ONLY

Item	Qty -011	Qty -013	Qty -015	Qty -101	Qty -201	Qty -103	Qty -203	Qty -105	Qty -205	Part Number	Description
	X									D206-667-011	SPACER BLOCK KIT
		X								D206-667-013	NUT PLATE KIT (-101/-103/-105/-203/-205)
			X							D206-667-015	NUT PLATE KIT (-201)
				X						D206-667-101	CROSSTUBE INSTALLATION, 206A/B HIGH FWD
					X					D206-667-201	CROSSTUBE INSTALLATION, 206A/B HIGH AFT
						X				D206-667-103	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH FWD
							X			D206-667-203	CROSSTUBE INSTALLATION, 206L/L-1/L-3/L-4 HIGH AFT
								X		D407-667-105	CROSSTUBE INSTALLATION, 407 HIGH FWD
									X	D407-667-205	CROSSTUBE INSTALLATION, 407 HIGH AFT
1				1						D206-667-141	CROSSTUBE ASSEMBLY, 206A/B HIGH FWD
2					1					D206-667-241	CROSSTUBE ASSEMBLY, 206A/B HIGH AFT
3						1				D206-667-143	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH FWD
4							1			D206-667-243	CROSSTUBE ASSEMBLY, 206L/L-1/L-3/L-4 HIGH AFT
5								1		D407-667-145	CROSSTUBE ASSEMBLY, 407 HIGH FWD
6									1	D407-667-245	CROSSTUBE ASSEMBLY, 407 HIGH AFT
10				*2	*2	*2		*2		D2891-1	SUPPORT
11							*2			D2892-1	SUPPORT
12									*1	D2894-1	SUPPORT
13				*2	*2	*2		*2		D2856-400-694	ABRASION STRIP
14							*2		*2	D2856-400-773	ABRASION STRIP
15									*1	D2856-600-851	ABRASION STRIP
16				*4	*4	*4		*4		MS21920-20	CLAMP
17							*4		*4	MS21920-22	CLAMP
18									*2	MS21920-24	CLAMP
19				4	4	4		4		AN5-32A	BOLT
20							4		4	AN5-34A	BOLT
21				4	4	4	4	4	4	MS21042L5	NUT (OR MS21042-5)
22				8	8	8	8	8	8	AN960JD516	WASHER
23									*2	D3190-1	CHAFING SHIELD
30	8									AN4-6A	BOLT
31	8									AN4-7A	BOLT
32	16									AN960JD416	WASHER
33	2									D3193-041	SPACER BLOCK ASSEMBLY
40		2		*2		*2	*2	*2	*2	D2873-043	NUT PLATE
41		2		*2		*2	*2	*2	*2	D2873-045	NUT PLATE
42			2		2					D2872-043	NUT PLATE
43			2		2					D2872-045	NUT PLATE
44		10		10		10				AN5-7A	BOLT
45		10	10		10		10	10	10	AN5-10A	BOLT
46		4	4	4	10	4		4		AN5-30A	BOLT
47		4					4		4	AN5-32A	BOLT
48		18	18	10	12	10	10	10	10	AN960JD516	WASHER
49		4	4		6					MS21042L5	NUT (OR MS21042-5)

*REFERENCE ONLY. PARTS ARE INCLUDED IN D206-667-141/241/143/243, & D407-667-145/245 ASSEMBLIES ABOVE

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. C
AND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA-D206-667 REV. 2

REF CANADIAN STC: SH01-5
REF FAA STC: SR01304NY
REF EASA STC: EASA.IM.R.S.01179

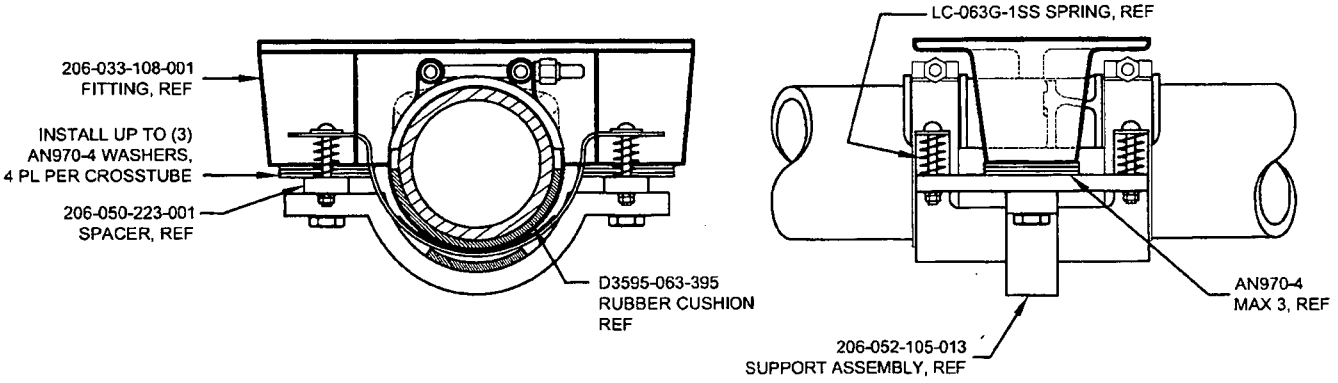
REFERENCE ONLY

PROBLEM:

FOR D206-667-103 CROSSTUBES (206L FWD) AT CHG 003 AND SUBSEQUENT (SEE DSI 9415) PROPER INSTALLATION OF THE OEM SUPPORT ASSEMBLIES MAY BE IMPOSSIBLE DUE TO THE ADDITIONAL THICKNESS OF THE DART D3595-063-395 RUBBER CUSHIONS. THE 206-052-105-013 SUPPORT ASSEMBLY (OR EQUIVALENT) MAY SIT TOO HIGH RELATIVE TO THE 206-033-108-001 FITTING, CAUSING THE LC-063G-1SS SPRING (OR EQUIVALENT) TO BE OVERLY COMPRESSED.

SOLUTION:

IT IS ACCEPTABLE TO LOWER THE SUPPORT ASSEMBLY BY INSTALLING UP TO QTY (3) AN970-4 WASHERS BETWEEN THE 206-033-108-001 FITTING (OR EQUIVALENT) AND THE 206-050-223-001 SPACER (OR EQUIVALENT). SEE FIGURE BELOW FOR REFERENCE.



CROSSTUBE SECTION: SUPPORT DETAIL

PARTS LIST:

THE FOLLOWING PARTS HAVE BEEN INCLUDED WITH D206-667-103 CROSSTUBES AT CHG 004 AND SUBSEQUENT

ITEM	Qty -103	PART NUMBER	DESCRIPTION
60	12	AN970-4	WASHER

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED
BY: _____
D. SHEPHERD (DE # 02)
DATE: 08.12.17
CERT. NO.: SH01-5
ISSUE NO.: 3

REV.	DESCRIPTION	BY	DATE
A	NEW ISSUE	CP	08.12.17

DESIGN	CP	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	CP	
CHECKED	PH	DRAWING NO. REV. A
MFG. APPR.	N/A	DSI 9439 SHEET 1 OF 1
APPROVED		TITLE SCALE
DE APPR.		206L FWD XTUBE SUPPORT MOD. NTS
DATE	08.12.17	

ACUREN

LIQUID PENETRANT TEST REPORT

P- 15188

PAGE 1 OF 1

CLIENT: DART AEROSPACE
ATTENTION: LINDA/CHANTEL
ADDRESS: 1270 ABERDEEN STREET. HAWKESBURY ON. K6H 1K7
PROJECT: F.P.I. ON CROSS TUBES.
ITEM(S) EXAMINED: 4 PCS. + 5 MACHINED STUDS

DATE: SEPT 2-2010 TIME: AM ☑ PM ☐
ACUREN JOB NO.: 188-10-0832
PO/WO NO.: 12506
WORK LOCATION: HAWKESBURY PLANT
ACCEPTANCE STD.: ASTM 1417 REV./DATE: 2007

JOB DESCRIPTION | PROCEDURE NO. LT600.2 REV./DATE | TECHNIQUE NO. LT-TECH 2 REV./DATE, 2008.

PART NO.: — MATERIAL: ALUMINUM ALLOY / STAINLESS STEEL THICKNESS: VARIOUS

SCOPE: WET FLUORESCENT LIQUID PENETRANT INSPECTION CARRIED OUT 100% EXTERNAL

TEST DETAILS

METHOD	☑ FLUORESCENT	☐ VISIBLE	☑ WATER WASH	☐ SOLVENT REMOVABLE	☐ POST EMULSIFIED
FAMILY BRAND	MAGNAFLUX		BLACK LIGHT S/N 16459	☐ OUTPUT > 1000 µ W/CM²	☐ AMBIENT < 2 fc
PENETRANT	2467	MINIMUM DWELL TIME 45/60 MIN.	LIGHTING EQUIP.	☐ FLASHLIGHT ☐ TROUBLELIGHT	☐ OUTPUT>100 fc @ SURFACE
PENETRANT REMOVER	1420	MINIMUM DRY TIME >10 MIN.	OTHER	LAB, NO	
DEVELOPER	SKD S2	MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N	1098866	CAL DUE DATE OCT-19 2010
DEVELOPER TYPE	☑ NON AQUEOUS	☐ AQUEOUS ☐ DRY			

TEST SURFACE

SURFACE CONDITION	☐ AS GROUND	☐ AS WELDED	☐ MACHINED	☐ SHOT BLASTED	☐ CLEAN BARE METAL
SURFACE TEMPERATURE	☐ < - 4°C/ 20°F	☐ - 4°C/ 20°F TO 10°C/50°F		☐ 10°C/50°F TO 52°C/125°F	☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

1	CROSSTUBE - W.O. 61294	✓
1	CROSSTUBE - W.O. 61295	✓
1	CROSSTUBE - W.O. 61296	✓
1	CROSSTUBE - W.O. 61297	✓
5	STUDS - W.O. 61371	✓

10-09-08

SIGNATURES

CLIENT REPRESENTATIVE: Matt Murdoch (PRINT) / Matthew Murdoch (SIGNATURE) DTR # E27427

TECHNICIAN (SIGNATURE):

NAME (PRINT): MIKE JOHNSTON (1ST TECHNICIAN)

CGSB LEVEL ____ SNT LEVEL ____ CGSB REG. NO ____

2ND TECHNICIAN: CGSB LEVEL ____ SNT LEVEL ____ CGSB REG. NO ____

REPORT REVIEWED BY: NAME INITIALS

WHITE – CLIENT COPY CANARY – OFFICE COPY PINK – TECHNICIAN COPY GOLD – OFFICE COPY